1.6.3 Embodied Energy of Concrete Exterior Walls in the U.S.

Exterior Wall Type	R-Value	Embodied Energy (MMBtu/SF) (1)	CO2 Equivalent Emissions (lbs/SF)
8" Concrete Block			
with Brick cladding + rigid insulation + vapor barrier	21.80	0.22	32.04
+ Gypsum board + latex paint	22.36	0.24	33.08
with Stucco cladding + rigid insulation + vapor barrier + gypsum board + latex paint	21.67	0.16	23.24
6" Cast-In-Place Concrete (3)			
with Brick cladding	21.84	0.22	33.78
with Steel cladding	21.65	0.24	50.12
with Stucco cladding	21.15	0.14	23.93
with 1" rigid insulation + 2x6 steel stud wall (24" OC) + batt insulation	9.64	0.11	20.93
8" Concrete Tilt-Up			
with Steel cladding (3)	21.81	0.24	50.25
with Stucco cladding (3)	21.31	0.15	24.06
with 2x6 steel stud wall (24" OC) + batt insulation	9.80	0.11	21.05
Insulated Concrete Forms			
with Steel cladding + gypsum board + latex paint	20.93	0.28	57.78
with PVC cladding + gypsum board + latex paint	20.99	0.20	32.19
with Wood cladding + gypsum board + latex paint	21.13	0.17	28.57

Note(s): Assumptions: 60 year building lifetime. Low rise building. Values are general estimations for the U.S. 1) Embodied Energy: Energy use includes extraction, processing, transportation, construction, and disposal of each material. 2) Resource Use: The weight of raw materials used in extraction, processing, transportation, construction and disposal of each material. 3) Includes cladding, 4" rigid insulation, vapor barrier, gypsum board, and latex paint unless otherwise described.

Source(s): Athena Institute, Athena EcoCalculator for Assemblies v.2.3. 2007, Available at www.athenasmi.org/tools/ecoCalculator/index.html